

trorse variety at Phie Than in the Tenasserim Valley. A fragment of *H. Saturnia*, Gould, was also sent from that valley, where *H. retrorsa* and *anceps*, Gould, were found abundantly, and *H. Theodori*, Phil., very sparingly. A shell, apparently referable as a variety to the Darjiling *H. Castra*, nobis, was once met with at Pyä, between Maulmain and Tavoy. *Helix Merguiensis*, Ph., *H. gabata*, Gould, a small var. of *H. delibrata*, nobis (*procumbens*, Gould), and *H. honesta*, Gould, occurred both at Maulmain and in the valley of the Tenasserim River, where *H. resplendens*, Ph., was not rare. The widely spread *H. similaris*, Fér., is noted from Thyet Myo and Prome, on the river Irawadi, and a sharply-keeled variety of *H. rotatoria*, V. d. Busch, hitherto supposed to be peculiar to Java, inhabits the banks of the same river, lower down, at Akaouktoung. None of the *Helices*, described by Gould or others from the former dominions of the Burmese Empire, appear to have escaped the researches of Mr. Theobald, who has added largely to the list, several other species of *Helix* remaining to be described.

Rhaphaulus (*Anaulus* and *Megalomastoma*) *Chrysalis*, Pfr., from Maulmain, in a more perfect condition than the type specimen, shows a much longer tube running up the penultimate whorl than either *bombycinus* or *Lorraini*, Pfr., and its colour is a rich chestnut. A dead specimen of *Megalomastoma sectilabre*, Gould, from Yanglaw on the Tenasserim River, confirms an opinion communicated last year to Pfeiffer, and derived from Gould's and Mason's observations, and from a view of Pfeiffer's supposed specimen of *sectilabre* from Borneo, that, although allied to, it was quite distinct from my Bornean *M. Anostoma*, with which Pfeiffer had believed it to be identical. The channel in *M. Anostoma* (Annals, 1852, vol. x. p. 269-270) is on the inner lip, as in *M. altum*, Sow. In *sectilabre* it appears on the right lip, near the top of the aperture. The latter is a more solid shell, with the spire more slender and longer in proportion; the suture is distinctly marginate; the peristome is white (not coloured, as in *M. Anostoma*), and presents a contrast with the orange-chestnut interior of the aperture; the apex also is not pale or white, as in the Bornean species.

Cheltenham, 30th July 1856.

XXIII.—On an Abnormality in the Flowers of *Salix Andersoniana*. By JOHN LOWE, Esq.*

IN the year 1841, the Rev. J. E. Leefe communicated to this Society a paper, entitled "Remarks on some curious Metamor-

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phoses of the Pistil of *Salix Caprea*." A short time since, I observed a corresponding set of changes occurring in the male flowers of *Salix Andersoniana*. These, as forming, with those of Mr. Leefe, a complete series of morphological changes, may not be unworthy the Society's notice. The changes observed by Mr. Leefe in *Salix Caprea* consist of a gradual conversion of the pistilline into staminal organs, each step in the process being clearly explained by the plate which is given with his paper in the 1st volume of the Society's 'Transactions.'

In the present specimens we have just the opposite, viz. the stamens becoming converted into ovaries, and this by every conceivable gradation.

The plant from which these were taken grows about half a mile below Cramond Bridge near Edinburgh; it is to all appearance strong and healthy, and in the majority of its flowers there was no observable alteration.

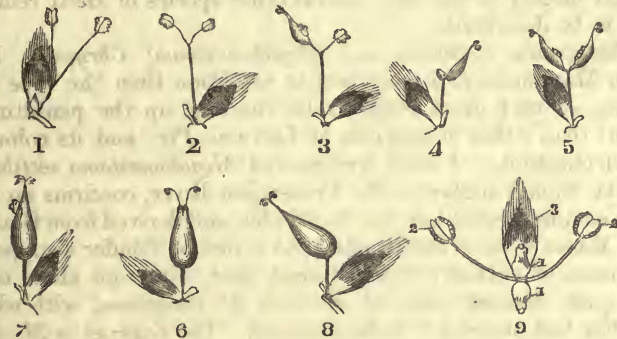


Fig. 1. is a floret whose filaments are partially united at the base; in other respects it is perfectly normal. The scales and glands in this as in the other florets present nothing unusual.

Fig. 2. The stamens still further united, giving the filament a forked appearance.

Fig. 3. represents one of the stamens of the last figure converted into an ovary which bears a pollen-mass on its inner edge; the other stamen is unaltered.

Fig. 4. A still more advanced condition. The ovary has no vestige of pollen-cells, but at the base is the remaining anther, sessile.

Fig. 5. shows each stamen converted into a carpel and bearing an antherine mass. The styles have each but one stigma.

Fig. 6. The two ovaries are here nearly united, but have a fissure superiorly in which are the remains of the anthers. The styles are distinct and monostigmatous.

Fig. 7. The fissure seen in last figure has disappeared by the

union of the styles ; a pollen-mass still remains on the side of the united ovaries.

Fig. 8. A complete and well-formed ovary.

I ought to remark here that these figures are not intended to represent the progressive development of the ovary as shown by any individual floret, but simply the different stages which may be traced in a number of florets and which may be reasonably regarded as successive.

We may now consider the cause of these phænomena and the laws which govern formations of this nature.

The generally received opinion regarding the production of diœcious flowers is that each flower is rendered unisexual by the suppression of the other sexual whorl, and though this may be mainly true of many diœcious plants, it does not appear to express the whole truth with respect to diœcious Amentiferæ.

Dr. Braun in his 'Rejuvenescence of Nature,' states that both kinds of sexual organs are derived from the same leaf, or as he expresses it, "the same leaves appear in the male as stamens and in the female as carpels." In other words, the leaf which fails to produce a male will give rise to a female organ, and *vice versâ*. Hence, though it is perfectly correct to say, that there is an arrest of development when stamens are alone produced, it is otherwise with respect to female organs, since there is here not an arrest but an exaltation of development.

These specimens illustrate also the parts of the leaf which give origin to the different parts of the essential organs ; thus, the anther gradually merging into the carpel shows that it is derived from the lamina of the leaf (the fact of the carpel being formed by the lamina of the leaf being ascertained by morphological changes in other plants). The pollen observed on the edge of the ovary in fig. 5, would encourage the idea that pollen is merely a gemmiferous condition of the lamina of the leaf. And, lastly, we may allude to the gland, which, although not presenting any peculiarity in the present specimens, I have nevertheless found in others assuming a very interesting form. I am not aware that the question has been mooted as to what is its real morphological value. It might be assumed to represent an abortive stamen, but that we find it present in those *Salices* which may be regarded as having their staminal whorl complete, *Salix pentandra* for instance. Moreover it is found to be placed opposite the interval in flowers which have only two stamens, thus having an alternate arrangement. I have little doubt, especially since meeting with the specimen shown in fig. 9, where there are two glands alternating with the stamens, that they represent the corolla. Regarding the scale as the calyx, we have thus the various whorls of the flower complete.